UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,789	04/08/2005	Yutaka Tokiwa	SAEG 184.001APC	9374

20995 7590 10/08/2008

KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
GOON, SCARLETT Y	

ART UNIT	PAPER NUMBER
1623	

NOTIFICATION DATE	DELIVERY MODE
10/08/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary	Application No.	Applicant(s)	
	10/530,789	TOKIWA ET AL.	
	Examiner	Art Unit	
	SCARLETT GOON	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,11-17 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,11-17 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *17 April 2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Applicants' Amendment and Remarks filed on 2 July 2008 in which claims 2-10 were cancelled, claims 1 and 11-13 are amended, and claim 37 is newly added. As indicated by Applicant, support for claim 37 can be found on p. 21, lines 11-14 of the specification.

Claims 1, 11-17 and 37 are currently pending and will be examined on the merits herein.

Priority

This application is a National Stage entry of PCT/JP03/13018 filed on 10 October 2003, and claims priority to Japanese patent application No. 2002-297040, filed on 10 October 2002, Japanese patent application no. 2002-353403, filed on 5 December 2002, Japanese patent application no. 2003-117973, filed on 23 April 2003, and Japanese patent application no. 2003-294543, filed on 18 August 2003. A certified copy of each foreign priority document, in Japanese, has been received. No English translation has been provided for any of the foreign priority documents.

Information Disclosure Statement

The information disclosure statement (IDS) dated 17 April 2008 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Accordingly, it has been placed in the application file and the information therein has been considered as to the merits.

Rejections Withdrawn

Applicant's amendment filed on 2 July 2008, deleting the word "alkylene" and replacing it with "alkyl" in claim 2, overcomes the rejection of claim 2 under 35 USC § 112, second paragraph, as being indefinite. This rejection in the Office Action dated 2 April 2008 has thus been withdrawn.

Applicant's amendment filed on 2 July 2008 amending claim 11 to read "A composition that inhibits tyrosinase comprising" overcomes the rejection of claim 2 under 35 USC § 112, second paragraph, as being indefinite. This rejection in the Office Action dated 2 April 2008 has thus been withdrawn.

In view of the cancellation of claim 2, all rejections made with respect to claim 2 in the previous Office Action are withdrawn.

The following are new ground(s) or modified rejections necessitated by Applicants' amendment, filed on 2 July 2008, wherein the limitations in pending claims 1, 11 and 13 as amended now have been changed; claim 12 depends from claim 11, and claims 14-17 depend from claim 13. The limitations in the amended claims have been changed and the breadth and scope of those claims have been changed. Therefore, rejections from the previous Office Action, dated 2 April 2008, have been modified and are listed below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11-14, 16, 17 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by WIPO WO2001/79241 to Weiss *et al.* (IDS dated 1 July 2005).

Weiss *et al.* teach biologically active glycoside esters, methods for their production and the use of these compounds in cosmetic or pharmaceutical preparations. The biologically active glycoside ester is made by reaction at the primary hydroxyl group of the sugar/glycoside (p. 2, paragraph 8). Preferred monosaccharide glycosides include glucose and arbutin (p. 2, paragraphs 13-14). Suitable fatty acids for esterification include stearidonic acid and 6,9,12,15-octadecatetraenoic acid (p. 2, paragraph 13).

The esterification reaction for the production of the glycoside ester is preferably carried out in the present of a lipase (p. 4, paragraph 4). Suitable enzymatic catalysts for esterification include lipases from Candida antarctica, Candida rugosa, Geotrichum candidum, aspergillus niger, penicillum roqueforti, rhizopus arrhizus and Mucor miehei (p. 4, paragraph 5). To purify the glycoside esters from the enzymatic reaction, an aqueous two-phase extraction procedure with organic solvents such as hexanes, cyclohexane, THF, or diethylether, is employed (p. 4, paragraph 10).

The glycoside ester compounds can be made into cosmetic preparations such as shampoos, lotions, creams, gels, etc. (p. 5, paragraph 1). In addition to the glycoside ester active ingredient, the cosmetic or pharmaceutical composition can further be combined with other active substances, together with one or more inert carriers or diluents (p. 5, paragraph 3).

The synthesis for esterification of arbutin with stearidonic acid is described in Example 3 (p. 5, last paragraph). The reaction is catalyzed with Lipase B from Candida antartica in the presence of molecular sieves, and was complete in 48 hours.

It is noted that Weiss *et al.* do not teach that the glycoside ester inhibits tyrosinase. However, the recitation "that inhibits tyrosinase" in claim 11 is considered to be an "intended use" of the composition, and is therefore not given any patentable weight. Applicant is requested to note that the "intended use" of a composition will not further limit the claims drawn to a composition or product, so long as the prior art discloses the same composition comprising the same ingredients in an effective amount, as the instantly claimed. See, e.g., *Ex parte Masham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

It is also noted that Weiss *et al.* do not explicitly teach that the esterification reaction is carried out while performing a dehydration treatment. However, the procedures for the synthesis of the glycoside esters, disclosed by Weiss *et al.*, involve the use of molecular sieves. As evidenced in the technical bulletin by Gordon *et al.*, molecular sieves are well-known for their drying capacity and are considered a general-purpose drying agent (PTO-892, Ref. U).

Thus, the synthesis of a stearidonic arbutin ester and its use in cosmetic preparations, disclosed by Weiss *et al.*, anticipates claims 1, 11-14, 16, 17 and 37.

Response to Arguments

Applicant's arguments filed on 2 July 2008 with respect to claims 1, 9 and 11-14 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's argue that claim 1 has been amended to incorporate the limitations of claims 2-10, specifically excluding the compounds disclosed by Nakajima *et al.*, the reference used in the rejection under 35 USC § 102 in the Office Action dated 2 April 2008, therefore rendering the claimed invention novel over Nakajima *et al.* In view of the amended claims, a new ground of rejection has been applied above.

Applicant's arguments filed 2 July 2008 with respect to the rejection of claim 16 made under 35 USC § 103(a) as being unpatentable over Nakajima *et al.*, as applied to claims 1, 9 and 11-14, and further in view of Lozano *et al.*, have been fully considered but they are not persuasive.

Applicants argue that the Nakajima *et al.* reference was applied to claims 1, 9 and 11-14, but the Nakajima *et al.* and Lozano *et al.* references do not teach the compounds described in the currently amended claims. This argument is not persuasive because the references were applied to the claims in the preliminary amendment filed on 14 February 2008, not to the currently amended claims. New

grounds of rejection for the currently amended claims, necessitated by Applicant's amendments, are as indicated above.

Applicants further argue that the Lozano *et al.* reference fails to bridge the gap between Nakajima *et al.* and the instant invention. With regards to the claims as filed on 14 February 2008, both references teach an esterification reaction using *Candida antarctica* lipase B as the catalyst. Therefore, as indicated in the Office Action dated 2 April 2008, one would have been motivated to combine the teachings because, as suggested by Lozano *et al.*, the synthetic activity of the lipase is strictly dependent on the water content, making it necessary to run the reaction under anhydrous conditions. Thus, in the synthesis of compounds, one of ordinary skill in the art would find the optimal conditions for running a reaction that generates the highest yield. Thus, a well-skilled artisan is aware that when a reaction that requires anhydrous conditions is not run under the required conditions, the resulting yield will decrease.

The rejection is still deemed proper and is therefore adhered to.

Applicant's arguments filed 2 July 2008 with respect to the rejection of claim 17 made under 35 USC § 103(a) as being unpatentable over Nakajima *et al.*, as applied to claims 1, 9 and 11-14, and further in view of Weiss *et al.*, have been fully considered but they are not persuasive.

Applicants argue that the Nakajima *et al.* reference was applied to claims 1, 9 and 11-14, but the Nakajima *et al.* and Kiyoshi *et al.* references do not teach the compounds described in the currently amended claims. This argument is not

persuasive because the references were applied to the claims in the preliminary amendment filed on 14 February 2008, not to the currently amended claims. New grounds of rejection for the currently amended claims, necessitated by Applicant's amendments, are as indicated above.

Applicants further argue that the Weiss *et al.* reference fails to bridge the gap between Nakajima *et al.* and the instant invention. With regards to the claims as filed on 14 February 2008, both references teach the esterification of an arbutin glycoside at the primary hydroxyl group using a lipase such as *Candida antarctica* as the catalyst. Therefore, as indicated in the Office Action dated 2 April 2008, it is *prima facie* obvious that one of ordinary skill in the art would be aware of the different techniques available for purification of a compound, and would thus be capable of choosing the most suitable technique.

The rejection is still deemed proper and is therefore adhered to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO WO2001/79241 to Weiss *et al.* (IDS dated 1 July 2005) as applied to claims 1, 11-14, 16, 17 and 37 above, in view of Japanese publication 2001-151623 to.Kiyoshi *et al.* (machine translation, IDS dated 1 July 2005).

The teachings of Weiss *et al.* were as described above in the claim rejections under 35 USC § 102.

Weiss *et al.* do not teach a method wherein the esterification reaction is carried out in the presence of a chemical catalyst.

Kiyoshi *et al.* teach the preparation of a skin lotion obtained by formulating an acylated derivative of glycosyl-L-ascorbic acid with silicone oil. An acyl ester can be introduced onto glycosyl-L-ascorbic acid via a chemical reaction (p. 3, section 0009) or an enzymatic reaction (p. 4, section 0011). In the case of a chemical reaction, acylating agents that can be used include an acid or acid halide, an anhydride, or an acid ester (p. 3, section 0009). The reaction is generally performed to the exclusion of water, usually in organic solvents such as pyridine, dimethylsulfoxide, and dimethylformamide (p. 4, section 0010). The reaction proceeds regioselectively onto the 6-OH group of the

glycosyl moiety. In the case of an enzymatic reaction, a lipase is generally used as the catalyst (p. 4, section 00110). Upon completion of the reaction, the product can be purified by salting out, dialysis, filtration, concentration, fractional precipitation, liquid extraction, or chromatography (p. 5-6, section 0012).

In their examples, Kiyoshi *et al.* describes the synthesis of 2-*O*-α-D-monoglucopyranosyl-6-*O*-octanoyl-L-ascorbic acid. First, 2-glucosylpyranosyl-L-ascorbic acid is dissolved in pyridine. Next, a solution of caprylic anhydride in pyridine is added to the glucosylpyranosyl-L-ascorbic acid solution and the reaction is allowed to proceed for 165 minutes at room temperature. The reaction is stopped by the addition of methanol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Weiss *et al.*, concerning the lipase-catalyzed synthesis of active glycoside esters of arbutin or other monosaccharides, with the teachings of Kiyoshi *et al.*, regarding the preparation of a skin lotion obtained by formulating an acylated derivative of glycosyl-L-ascorbic acid, synthesized either chemically or enzymatically (using a lipase), with silicone oil. It is noted that Kiyoshi *et al.* do not teach the same compounds as Weiss *et al.* However, as both references teach the esterification of the primary hydroxyl group of a glycoside using an enzymatic method that employs a lipase and Weiss *et al.* teach that the glycoside ester compounds have enhanced absorption and penetration properties in cosmetics (p. 2, paragraph 6), one would have been motivated to search for other possible avenues of synthesis as a means to optimize production conditions. Additionally, one would have

been motivated to combine the teachings in order to receive the expected benefit, as suggested by Kiyoshi *et al.*, that the chemical reaction is complete in 165 minutes, whereas the enzymatic reaction taught by Weiss *et al.* required 48 hours for completion (p. 5, last paragraph).

Thus, the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Response to Arguments

Applicant's arguments filed 2 July 2008 with respect to the rejection of claim 15 made under 35 USC § 103(a) as being unpatentable over Nakajima *et al.*, as applied to claims 1, 9 and 11-14, and further in view of Kiyoshi *et al.*, have been fully considered but they are not persuasive.

Applicants argue that the Nakajima *et al.* reference was applied to claims 1, 9 and 11-14, but the Nakajima *et al.* and Kiyoshi *et al.* references do not teach the compounds described in the currently amended claims. This argument is not persuasive because the references were applied to the claims in the preliminary amendment filed on 14 February 2008, not to the currently amended claims. New grounds of rejection for the currently amended claims, necessitated by Applicant's amendments, are as indicated above.

Applicants further argue that the Kiyoshi *et al.* reference fails to bridge the gap between Nakajima *et al.* and the instant invention. With regards to the claims as filed on 14 February 2008, both references teach the esterification of a glycoside at the

primary hydroxyl group using a lipase as the catalyst. Therefore, as indicated in the Office Action dated 2 April 2008, one would have been motivated to combine the teachings because, as suggested by Kiyoshi *et al.*, the chemical reaction is complete in 165 minutes whereas Nakajima *et al.* teach that the enzymatic reaction requires at least two days. Thus, a well-skilled artisan would be able to choose between running an esterification reaction that requires more or less time.

The rejection is still deemed proper and is therefore adhered to.

Conclusion

In view of the rejections to the pending claims set forth above, no claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCARLETT GOON whose telephone number is 571-270-5241. The examiner can normally be reached on Mon - Thu 7:00 am - 4 pm and every other Fri 7:00 am - 12 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shaojia Anna Jiang, Ph.D./
Supervisory Patent Examiner, Art Unit 1623

/SCARLETT GOON/
Examiner
Art Unit 1623